

Patent Claims

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1. An arrangement for transporting metallic work pieces (20), especially during a heat treatment process, comprising a heat-insulated transport chamber (10) to hold the work pieces (20), means (40) for loading and unloading the work pieces (20), and a transporting gear (30) for moving the transport chamber (10), characterized in that the transport chamber (10) can be moved horizontally, is designed to be vacuum-tight, and can be evacuated of air to create a vacuum to protect the work pieces (20) from environmental influences; it also contains a horizontal batch loading and unloading device.
  2. The arrangement in accordance with claim 1, characterized by a vacuum pump for evacuating the air from the transport chamber (10).
  3. The arrangement in accordance with claim 1 or 2, characterized in that the transport chamber (10) (may be heated.)
  4. The arrangement in accordance with one of claims 1 through 3, characterized in that the transport chamber (10) is equipped with a removable thermal insulation (12), preferably made of steel.
  5. The arrangement in accordance with one of claims 1 through 4, characterized in that the transport chamber (10) is equipped with a hermetically sealable loading door (15), which may be actuated via a drive mechanism (16).
  6. The arrangement in accordance with claim 5, characterized in that the transport chamber (10) is equipped with a hermetically sealable connecting door.

7. The arrangement in accordance with one of claims 1 through 6, characterized in that the transport chamber (10) and the transporting gear (30) can be moved relative to one another.
8. The arrangement in accordance with claim 7, characterized in that the transport chamber (10) is positioned on the transporting gear (30) such that it can pivot horizontally or can move in a straight line in a horizontal and/or vertical direction.
9. The arrangement in accordance with one of claims 1 through 8, characterized in that the transporting gear (30) can rotate in place.
10. The arrangement in accordance with one of claims 1 through 9, characterized in that the transporting gear (30) is rail-mounted, or can be controlled freely via induction loops embedded in the base.
11. A system for heat treating metallic work pieces (20) comprising at least two treatment chambers (50) for the horizontal acceptance of batches, (in which the work pieces (20) can be heat treated,) characterized in that an arrangement in accordance with one of claims 1 through 10 can be coupled to the treatment chamber (50) via a transfer canal (60) that can be evacuated of air.
12. The system in accordance with claim 11, characterized in that the transfer canal (60) is connected to the treatment chamber (50) in a stationary position.
13. The system in accordance with claim 11 or 12, characterized in that the transfer canal (60) can be evacuated separately.

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14. The system in accordance with one of the claims 11 through 13, characterized in that the transfer canal (60) is equipped with a drive mechanism, via which the loading door (15) of the transport chamber (10) may be actuated.
15. The system in accordance with one of the claims 11 through 14, characterized in that the treatment chamber (50) is a vacuum furnace, an atmospheric furnace, or a cooling chamber.
16. A method of transporting metallic work pieces (20) during a heat treatment process, in which the work pieces (20) are transported within a heat-insulated, horizontally movable transport chamber (10), between at least two horizontally loaded treatment chambers (50), in which the work pieces (20) may be heat treated, characterized in that the transport chamber (10), which is designed to be vacuum-tight, is evacuated of air, creating a vacuum that will protect the work pieces (20) from environmental influences, and in that the work pieces (20) are transported within this vacuum from one treatment chamber (50) to the next, and in this are held at the treatment temperature, without any significant drop in temperature.
17. The method in accordance with claim 16, characterized in that the transport chamber (10) is coupled via a transfer canal (60) to the appropriate treatment chamber (50).
18. The method in accordance with claim 17, characterized in that the transfer canal (60) is evacuated separately.

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